



U.S. Patent Application
Attorney Docket No.: LEAP:101_US_

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: **VACCARELLI, Vincent**

Examiner: **Bell, Paul A.**

U.S. Patent Application Serial No.: **09/821,578**

Group Art Unit: **2675**

For: **MICROSCOPY LABORATORY SYSTEM**

Filed: **March 29, 2001**

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BRIEF ON APPEAL
(37 C.F.R. §1.192)

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Honorable Sir:

Applicants respectfully appeal the decision of the Primary Examiner to finally reject Claims 1-11 and 14-21, as set forth in the final Office Action of June 3, 2003.

REAL PARTY IN INTEREST

The Real Party in Interest in this matter is Leica Microsystems, Inc., assignee.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences pertaining to this matter.

Serial No. 09/821,578
Docket No. LEAP:101_US_
Appeal Brief dated: January 26, 2004

STATUS OF CLAIMS

Claims 1-11 and 14-21 are currently pending in this application. Claims 12 and 13 have been cancelled. The Examiner issued a Final Rejection of Claims 1-11 and 14-21 on June 3, 2003. Claims 1-11 and 14-21 are the subject of this appeal.

STATUS OF AMENDMENTS

An Amendment to the claims and a Request for Reconsideration after Final rejection was filed on August 1, 2003 in response to the final Office Action of June 3, 2003. A Supplemental Amendment and Request for Reconsideration was filed after an Examiner Interview conducted August 7, 2003. In an Advisory Action dated October 31, 2003, the Primary Examiner again finally rejected Claims 1-11 and 14-21 and canceled Claim 22 as requested in the Amendment dated August 1, 2003. However, the Primary Examiner did not enter any of the other requested amendments to the claims from the Amendments dated August 1, 2003 or August 7, 2003.

A Notice of Appeal was filed on October 22, 2003 which was received by the United States Patent and Trademark Office on October 24, 2003 as indicated in the enclosed copy of the acknowledgement postcard. In an informal telephone conference with the Examiner on January 20, 2004, the Examiner indicated that the Notice of Appeal had not been entered. As additional proof of Applicant's timeliness, Applicant has also enclosed a copy of the check which was submitted with the Notice of Appeal which indicates that the United States Patent and Trademark Office endorsed it and received payment. Thus, Applicant respectfully requests entry of the timely-filed Notice of Appeal.

SUMMARY OF THE INVENTION

The present invention relates to a microscopy laboratory system comprising:

a plurality of student microscopes;

a plurality of cameras associated one with each of said plurality of student microscopes for generating an image signal representing a student view image of at least a portion of the field of view

of said student microscope;

multiplexed control means connected to said plurality of cameras for receiving said image signals and enabling an instructor to select a set of said image signals for display, wherein said multiplexed control means generates an instruction image signal generated from said selected set of image signals; and

display means connected to said multiplexed control means for receiving said instruction image signal and displaying an instruction image comprising student view images corresponding to said selected set of image signals; and

a display image marker means connected to said multiplexed control means for enabling said instructor to annotate said instruction image.

ISSUES PRESENTED FOR REVIEW

1. Whether Claims 1-11 and 14-21 are novel under 35 U.S.C. §102(b) and therefore patentable over United States Patent No. 5,376,007 (Zirm)?

GROUPING OF CLAIMS

Applicants respectfully submit that Claims 1-11 and 14-21 do not stand or fall together. While Claim 1 is the sole independent claim, the dependent claims have independent patentable significance over and above Claim 1.

ARGUMENT

1. The Rejection of Claim 1 under 35 U.S.C. §102(b)

a.) Summary of the Rejection:

The Examiner rejected Claim 1 under 35 U.S.C. §102(b) as being anticipated by Zirm (USPN 5,376,007).

b.) The Reference cited by The Examiner:

For purposes of providing background, Applicant briefly discusses the Zirm reference cited

by the Examiner. Zirm describes "a method for teaching microsurgical operation techniques, the teacher demonstrating the operation technique to be taught on an operation model, whereby the operation field is observed by the teacher through a microscope and recorded by at least one video camera, whose signals are presented by a monitor or by a video projector on a large screen projector." (see Abstract). Thus, as indicated in Col. 4, lines 24-59 below, Zirm discloses a method of teaching students microsurgery remotely via video and audio.

In FIG. 2 at each student station, as represented in stations 1 and 2, a video camera 38 is provided, which views the operation object 11 from below, that is, the side opposite that from which the student observes the model. The signals from the video camera 38 are similarly directed, by means of conductor 31, to the video distributor 17 and can also be presented on the multiple-field monitor 18.

It is also possible to obtain additional measurement results from the operation step such as for example the results of a pressure measurement from the operation zone, in order to determine any possible damage to the tissue.

The conductors 32 (FIG. 2 upper left) of this measuring device lead to a measurement data accumulation component 33, which for example is constituted by a digital multiplexer, and from the exit of the latter, a conductor 34 leads to a computer 35, which collects and computes the data in digital form.

As a result of the foregoing, the corresponding measurement findings at the conclusion of the operation can be coordinated with the video pictures of each operation, utilizing a synchronized timer as a basis.

From the foregoing it is also observed that a great advantage of the operation techniques disclosed result in great benefits in teaching technique, since the teacher at the station 36, by means of depressing a button in the video distributor 17 and a button in the audio distributor 19, can at any time establish oral communication between the teacher and each individual student, as well as to display the video picture of the operation field of this student alone on the multiple-field monitor 18. It is therefore possible, by means of this invention, to conduct an intense and undistracted instruction to several students at one time.

c.) The Present Invention :

Some of the key structural elements of the present invention are described in Claim 1. Claim 1 teaches a microscopy laboratory system comprising:

a plurality of student microscopes;

a plurality of cameras associated one with each of said plurality of student microscopes for

generating an image signal representing a student view image of at least a portion of the field of view of said student microscope;

multiplexed control means connected to said plurality of cameras for receiving said image signals and enabling an instructor to select a set of said image signals for display, wherein said multiplexed control means generates an instruction image signal generated from said selected set of image signals; and

display means connected to said **multiplexed control means** for receiving said instruction image signal and displaying an instruction image comprising student view images corresponding to said selected set of image signals; and

a display image marker means connected to said multiplexed control means **for enabling said instructor to annotate** said instruction image.

d.) Arguments: The reference cited by the Primary Examiner does not contain each and every element of the present invention.

An invention is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently, in a single prior art reference. As elucidated below, Zirm fails to teach several elements of the present invention.

i.) Zirm Does Not Disclose a "Display Image Marker Means for Enabling Annotation by an Instructor" as Required by Claim 1

Claim 1 specifically recites the element "a display image marker means for enabling said instructor to annotate said instruction image." Zirm does not disclose this element. Therefore, Zirm does not anticipate Claim 1, or any of its trailing dependent claims, under 35 U.S.C. §102.

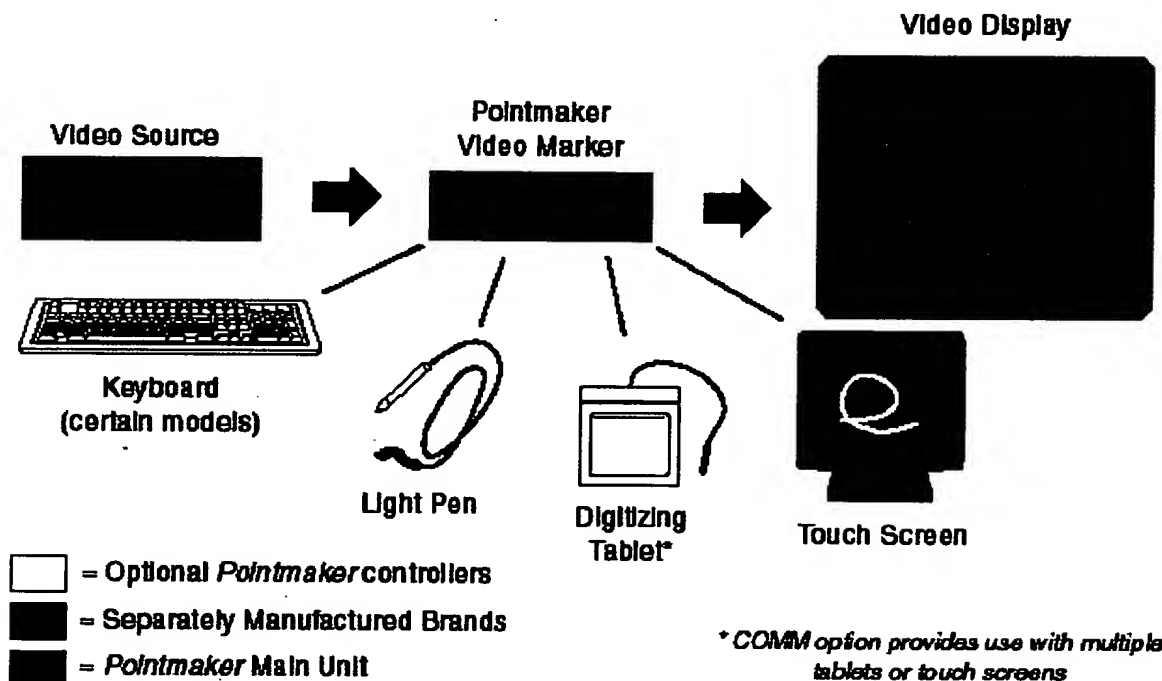
The Meaning of "Display Image Marker Means" and "Annotate"

The display image marker means of the invention is described in paragraph 14 of the specification as follows:

Microscopy laboratory system 110 also includes a commercially available display image marker 156. The POINTMAKER® PVI-44 Video Marker available from Boeckeler Instruments, Inc. is suitable for practicing the present invention. Display image marker 156 is connected by standard video cable to receive an output image signal from multiplexer 120. A final instruction image signal, including any

annotations added by way of display image marker 156, is supplied to projection unit 26 and to an optional videocassette recorder 160 operatively associated with instructor monitor 28. Consequently, it is possible to record instructional lessons and observed microscopic processes for future use.

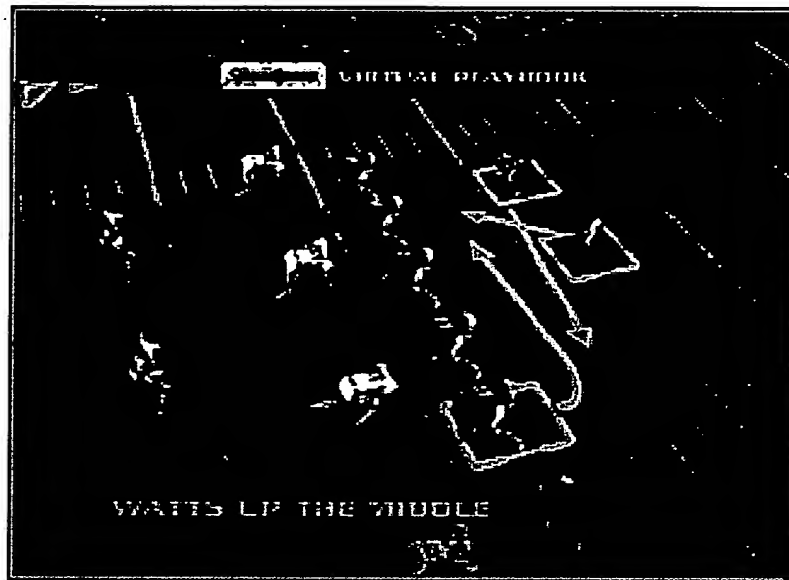
The display image marker allows an instructor to annotate an instruction image. The instructor can draw on-screen to circle important features of a video image, underscore for emphasis, or write important data on the image. Annotation can be accomplished by drawing on digitizer tablet 58 with pen 60. The annotated image appears on the video display, as illustrated herebelow:



(Source: www.boeckeler.com/pointmaker/pvigenbroch.html - web site which describes the POINTMAKER® PVI-44 Video Marker apparatus recited in the specification at paragraph 14, the data sheet of which is attached in the Appendix).

The display image marker means is similar in function to the well-known Telestrator apparatus, made famous by ABC Monday Night Football commentator John Madden. As every football fan knows, the Telestrator, a type of "display image marker" enables the commentator to

illustrate points about the game which are useful, or at least entertaining, to the viewer. An example of such use of a Telestrator display image marker means appears herebelow:



Just as the Telestrator allows John Madden to explain the subtleties and nuances of football to television viewers, the display image marker system of the present invention (Claim 1) enables an instructor to annotate images from a microscope to instruct her students. The annotation is visual, not auditory (as in Zirm). It is visual because Claim 1 specifically recites a display image marker.

The plain-meaning of the term “annotation” is “to add a brief explanation or opinion to a text or drawing” (Cambridge Advanced Learner’s Dictionary English) or “to make or furnish critical or explanatory notes or comment” (Merriam-Webster Dictionary). There is simply NO teaching in Zirm of these elements of Claim 1.

Finally, Zirm discloses a method of teaching students remotely via video and audio. The fact is that Zirm does not explicitly or implicitly teach "a display image marker means" or "annotation". It is important to note that the terms "image marker" and "annotation" appear nowhere in the Zirm reference.

Examiner states that "a display image marker means connected to said multiplexed control means for enabling said instructor to annotate said instruction image" can be found in Zirm, column 4, lines 20-47 (see above). Even reading Zirm broadly, these features are not found anywhere in the patent and certainly not in the lines indicated. These lines specifically disclose a method for teaching students microsurgical operation techniques of the eye during which pressure measurements may be taken to determine tissue damage. Recording pressure measurements of the eye is simply not the same thing as "annotating" a video image.

ii) Zirm Does Not Disclose a "Display Means **Connected** to a Multiplexed Control Means" as Required by Claim 1

Claim 1 specifically recites the element "display means connected to said multiplexed control means". Zirm does not disclose this element. Therefore, Zirm does not anticipate Claim 1, or any of its trailing dependent claims, under 35 U.S.C. §102.

(1) Zirm Does Not Teach or Disclose a Video Multiplexer

The multiplexed control means of Claim 1 multiplexes video signals (this is clear from the fact that the display means [which displays images from video signals] is connected to the multiplexed control means). Zirm does not disclose a video multiplexer. Rather, he discloses a video distributor 17. This video distributor is not a multiplexer, or a multiplexed control means as required by Claim 1.

As is well-known, a multiplexer is, "a device for combining two or more signals" (McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Edition, Page 1309, 1994). A multiplexer is an efficient way of combining a plurality of signals for transmission along a single path. Once multiplexed, the combined signals must be demultiplexed by a demultiplexer, that is, by "A device used to separate two or more signals that were previously combined by a compatible multiplexer and

transmitted over a single channel." (McGraw-Hill Dictionary of Scientific and Technical Terms, 5th Edition, Page 540, 1994). Multiplexing and demultiplexing are automatic processes achieved by special electronic circuits. They obviate the need for manual operations, i.e., pushbuttons.

It is clear that Zirm does not teach the use of a video multiplexer. First, as clearly shown in Figures 1 and 2, the video signals from the microscopes are all fed into device 17, described in the specification as a video distributor, and not as a multiplexer. If device 17 was a multiplexer, Zirm would have called it a multiplexer. He did not. (Zirm specifically recites and describes a data multiplexer 33, for combining pressure measurement signals into a single channel - so clearly he knows what a multiplexer is, and yet device 17 is described as a "video distributor" and not a "video multiplexer".)

A telltale sign that device 17 is not a multiplexer, and that Zirm does not use a multiplexer to combine the video signals from the plurality of microscopes appears in Col. 4, lines 47-55:

From the foregoing it is also observed that a great advantage of the operation techniques disclosed result in great benefits in teaching technique, since the teacher at the station 36, **by means of depressing a button in the video distributor 17** and a button in the audio distributor 19, can at any time establish oral communication between the teacher and each individual student, as well as to display the video picture of the operation field of this student alone on the multiple-field monitor 18. (emphasis added.)

Multiplexers don't have or require pushbuttons! Buttons are required to manually select signals to be displayed because Zirm doesn't use a multiplexer to combine the signals automatically!

Another telltale sign that device 17 is not a multiplexer appears in Figures 1 and 2. As shown in these drawings, video distributor 17 is shown as a rectangular box with sixteen (16) smaller rectangles therein. Presumably, the sixteen (16) smaller rectangles denote pushbuttons. As shown in Figure 2, reprinted and annotated herein below, multiplexer 33 is shown as a plain rectangle, whereas video distributor 17 is shown as a rectangle with a plurality of smaller rectangles therein:

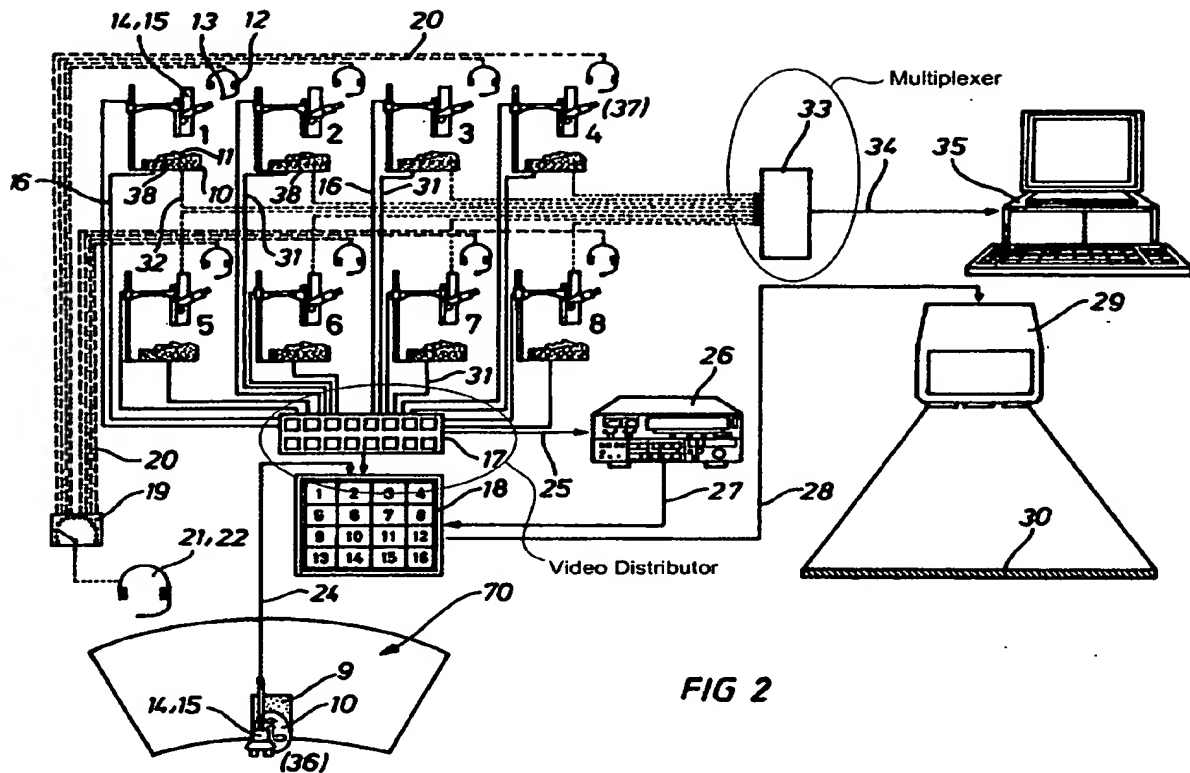


FIG 2

(2) Zirm's Multiplexer

Zirm does teach a multiplexer. But Zirm's multiplexer 33 is used to multiplex data signals from pressure transducers, and not video signals. In column 2, line 53-57, Zirm discloses that, "The signals from such [pressure or geometrical] measurements are digitalized and sent over a multiplexer to a computer, which then may be utilized for summing up the entire operation, and providing a test certificate." Thus, the Zirm multiplexer is used for gathering and analysis of pressure data. It is an independent component, separate from the video image loop. This is reiterated in Fig. 2, component 33 and column 4, lines 37-42 which states, "The conductors 32 (FIG. 2 upper left) of this measuring device lead to a measurement data accumulation component 33, which for example is constituted by a digital multiplexer, and from the exit of the latter, a conductor 34 leads to a computer 35, which

collects and computes the data in digital form.” This emphasizes again that the multiplexer is NOT in the video loop, i.e., it is NOT connected in the part of the circuit that multiplexes display images. Thus, although Zirm has a multiplexer, it is not in the video loop, and it is used to multiplex pressure signals, not video signals.

iii.) The Structural Elements of Claim 1 which Provide Functional Advantages Over the Zirm Device

Zirm fails to teach “a display image marker means connected to said multiplexed control means for enabling said instructor to annotate said instruction image”. Thus, the instruction image cannot be annotated in the Zirm device. Also, Zirm features an elaborate video distributor with sixteen pushbuttons for coordinating various images. The multiplexer mentioned in Zirm is separate from the video image loop and cannot be used to multiplex video signals. As a result, the structural limitations of the present invention provides numerous functional benefits over Zirm.

2. The Rejection of Claims 2-11 and 14-21 under 35 U.S.C. §102(b)

a.) Summary of the Rejection:

The Examiner rejected Claim 2-11 and 14-21 under 35 U.S.C. §102(b) as being anticipated by Zirm (USPN 5,376,007).

b.) The References cited by The Examiner: Zirm was discussed above.

c.) The Present Invention:

Elements of the present invention have been discussed above as relating to independent Claim 1 from which Claims 2-11 and 14-21 ultimately depend. However, each of these dependent claims has independent patentable significance over and above Claim 1. Specifically, Claim 2 teaches that the microscopy laboratory system may further comprise an instructor microscope and a camera for generating an image signal representing an instructor view image of at least a portion of the field of view of the instructor microscope, wherein the multiplexed control means is connected to the camera associated with the instructor microscope to receive the image signal generated thereby, whereby the instruction image optionally comprises the instructor view image. Claims 3 and 4 teach

that the multiplexed control means allows the instructor to select all of the image signals from the cameras associated with the plurality of student microscopes as the selected set. Claims 5 and 6 teach that the multiplexed control means allows the instructor to select the image signal from the camera associated with any one of the plurality of student microscopes as the selected set. Claims 7 and 8 teach that the multiplexed control means allows the instructor to select the image signals from cameras of a predetermined sub-group of the plurality of student microscopes as the selected set. Claims 9 and 10 teach that there is a plurality of different predetermined sub-groups of the student microscopes. Claim 11 teaches that the multiplexed control means allows the instructor to select the image signal from the camera associated with the instructor microscope as the selected set. Claim 14 teaches that the microscopy laboratory system may further comprise a computer connected to the multiplexed control means, the computer having a memory, whereby the instruction image and the student view images can be stored in and retrieved from the memory. Claim 15 teaches that the microscopy laboratory system may further comprise a computer connected to the multiplexed control means, the computer having a memory, whereby the instruction image, the student view images, and the instructor view image can be stored in and retrieved from the memory. Claims 16 and 17 teach that the multiplexed control means may comprise means for selectively superimposing respective identification information on each of the student view images in the instruction image. Claim 18 and 19 teach that the multiplexed control means may comprise means for magnifying the instruction image. Claim 20 teaches that the connection between the multiplexed control means and the plurality of cameras may comprise a wireless connection. Claim 21 teaches that the connection between the display means and the multiplexed control means may comprise a wireless connection.

d.) Arguments: In addition to the lack of anticipation of all of the elements of Claim 1, Zirm does not teach the additional limitations of Claims 2-11 and 14-21. Specifically, as required by elements of Claim 2-11, there is no teaching in Zirm of a **multiplexer control means** which can be used to coordinate and manipulate **video/image** signals from various cameras. Instead Zirm teaches a complex pushbutton system to manually select signals to be displayed because Zirm doesn't use a multiplexer to combine the signals automatically.

As for Claims 14 and 15, while Zirm mentions a computer, 35, it is used to collect and compute pressure data in digital form. Again, there is no teaching that the computer may be used to coordinate and manipulate video/image signals. Col. 4, lines 42-48 of Zirm teach that pressure “measurement findings at the conclusion of an operation can be coordinated with the video pictures of each operation, utilizing a synchronized timer as a basis”. This has nothing to do with “selectively superimposing respective identification information on each of the student view images in the instruction image” as required by limitations in Claims 16 and 17 of the present invention. Zirm also fails to teach a **multiplexed control means** for magnifying instruction images as required by Claims 18 and 19. Finally, Claims 20 and 21 teach a wireless connection involving a **multiplexed controls means**. In summary, Zirm’s fails to teach a video multiplexer which greatly reduces the functional benefits provided by the structural limitations of the present invention.

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Conclusion

For the reasons set forth above, Applicant respectfully submits that Claims 1 through 11 and 14 through 21 are patentable over Zirm. Accordingly, Applicant prays that this Honorable Board will reverse the Primary Examiner's rejection of Claims 1-11 and 14-21.

Pursuant to 37 CFR 1.136(a), Applicant respectfully petitions for an extension of the shortened statutory period for response by one month in the above-identified Application from December 26, 2003 to January 26, 2004. A check in the amount of \$440.00 is enclosed for payment of the \$110.00 one month extension of time and \$330.00 for the Appeal Brief.

Respectfully submitted,



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Appendix

Reprinted here below are the claims involved in this appeal:

1. A microscopy laboratory system comprising:
a plurality of student microscopes;
a plurality of cameras associated one with each of said plurality of student microscopes for generating an image signal representing a student view image of at least a portion of the field of view of said student microscope;
multiplexed control means connected to said plurality of cameras for receiving said image signals and enabling an instructor to select a set of said image signals for display, wherein said multiplexed control means generates an instruction image signal generated from said selected set of image signals; and
display means connected to said multiplexed control means for receiving said instruction image signal and displaying an instruction image comprising student view images corresponding to said selected set of image signals; and
a display image marker means connected to said multiplexed control means for enabling said instructor to annotate said instruction image.
2. The microscopy laboratory system according to claim 1, further comprising an instructor microscope and a camera for generating an image signal representing an instructor view image of at least a portion of the field of view of said instructor microscope, wherein said multiplexed control means is connected to said camera associated with said instructor microscope to receive said image signal generated thereby, whereby said instruction image optionally comprises said instructor view image.

3. The microscopy laboratory system according to claim 1, wherein said multiplexed control means allows said instructor to select all of said image signals from said cameras associated with said plurality of student microscopes as said selected set.
4. The microscopy laboratory system according to claim 2, wherein said multiplexed control means allows said instructor to select all of said image signals from said cameras associated with said plurality of student microscopes as said selected set.
5. The microscopy laboratory system according to claim 1, wherein said multiplexed control means allows said instructor to select said image signal from said camera associated with any one of said plurality of student microscopes as said selected set.
6. The microscopy laboratory system according to claim 2, wherein said multiplexed control means allows said instructor to select said image signal from said camera associated with any one of said plurality of student microscopes as said selected set.
7. The microscopy laboratory system according to claim 1, wherein said multiplexed control means allows said instructor to select said image signals from cameras of a predetermined sub-group of said plurality of student microscopes as said selected set.
8. The microscopy laboratory system according to claim 2, wherein said multiplexed control means allows said instructor to select said image signals from cameras of a predetermined sub-group of said plurality of student microscopes as said selected set.
9. The microscopy laboratory system according to claim 7, wherein there is a plurality of different predetermined sub-groups of said student microscopes.

10. The microscopy laboratory system according to claim 8, wherein there is a plurality of different predetermined sub-groups of said student microscopes.

11. The microscopy laboratory system according to claim 2, wherein said multiplexed control means allows said instructor to select said image signal from said camera associated with said instructor microscope as said selected set.

12. Cancelled.

13. Cancelled.

14. The microscopy laboratory system according to claim 1, further comprising a computer connected to said multiplexed control means, said computer having a memory, whereby said instruction image and said student view images can be stored in and retrieved from said memory.

15. The microscopy laboratory system according to claim 2, further comprising a computer connected to said multiplexed control means, said computer having a memory, whereby said instruction image, said student view images, and said instructor view image can be stored in and retrieved from said memory.

16. The microscopy laboratory system according to claim 1, wherein said multiplexed control means comprises means for selectively superimposing respective identification information on each said student view image in said instruction image.

17. The microscopy laboratory system according to claim 2, wherein said multiplexed control means comprises means for selectively superimposing respective identification information on each said student view image in said instruction image.

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18. The microscopy laboratory system according to claim 1, wherein said multiplexed control means comprises means for magnifying said instruction image.

19. The microscopy laboratory system according to claim 2, wherein said multiplexed control means comprises means for magnifying said instruction image.

20. The microscopy laboratory system according to claim 1, wherein said connection between said multiplexed control means and said plurality of cameras comprises a wireless connection.

21. The microscopy laboratory system according to claim 1, wherein said connection between said display means and said multiplexed control means comprises a wireless connection.

